US Army Corps of Engineers
Walla Walla District

Lower Snake River
JUVENILE SALMON MIGRATION
Feasibility Study
FACT SHEET

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Lower Snake River Juvenile Salmon Migration Feasibility Study

Water Supply Analysis

The U.S. Army Corps of Engineers (Corps) is conducting a feasibility study of ways to improve juvenile salmon migration through the hydropower system on the lower Snake River. The study focuses on how the lower Snake River dams can be changed to improve survival and recovery prospects for Snake River salmon stocks listed under the Endangered Species Act.

Three major pathways are being evaluated for the four lower Snake River dams: maintain the existing system with planned improvements; make major system improvements to bypass facilities; and natural river drawdown, commonly referred to as dam breaching. The Corps is preparing a draft Feasibility Report/Environmental Impact Statement (FR/EIS) for release for public review in Fall 1999.

The Drawdown Regional Economic Workgroup (DREW) was established to develop a comprehensive social and economic analysis (which includes recreation and tourism) for this feasibility study. The DREW includes economists from Federal agencies, the Northwest Power Planning Council, states, tribes, contractors, and other regional stakeholders. Although the Corps acquired this document as part of its EIS process, the opinions and/or findings expressed in the report do not necessarily reflect the official policy or position of the Corps.

Water Supply Analysis:

The water supply workgroup, a DREW subgroup, has completed a preliminary report on the water supply analysis for the lower Snake River study. This preliminary report is an analysis of the direct economic effects to agricultural, as well as municipal and industrial, users of water from the lower Snake River under dam breach conditions.

This preliminary draft report will become the basis of a chapter on water supply of the Economic Appendix of the *Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement.* It is important to note that this analysis is still preliminary data, and is subject to review and revision, based on

comments received as part of the reviews of the DREW team and the Independent Economic Analysis Board (IEAB).

The water supply analysis focuses on the evaluation of Snake River water users, and the potential effects to these users resulting from actions to improve anadromous fish returns. Although there are several different alternatives under consideration to improve anadromous fish returns, the options that include breaching the lower Snake River dams are the ones that directly affect the operation of river pump stations and wells used for irrigation and other purposes.

Irrigation water for farm purposes is the dominant consumptive use of water pumped from the river. In addition to pump irrigation water users, other water user groups that may be impacted by breaching the lower Snake River dams are also described in this analysis, including municipal and industrial (M&I) pump operators and private well users.

The methods of assessing effects to pump irrigation water users include: 1) the identification and quantification of options to maintain existing water delivery capabilities (*e.g.*, determining the capital costs of pump modification); and 2) assessment of the economic effects that would occur with the loss of irrigation water deliveries. The latter method measures economic effects, based on changes in the market value of the land. Initially, the modification cost approach was to be the only analysis applied to measure the economic effects to water users under dam breach conditions. Several technical concerns were identified during the analysis of modification costs that resulted in a significant increase in the costs to modify the pump systems.

Technical concerns included the lack of acceptable locations to place the new pump stations that would work with fluctuating and meandering river conditions. It was determined that, under dam breach conditions, this stretch of the river, with a flat, wide bottom and substantial silt, sand, and gravel deposits, would meander over time and potentially affect the availability of water and/or erode new pump stations.

Because of the high cost to modify pump stations, it has been determined the taking farmland out of production under dam breach conditions provides the most reasonable (least cost) estimate of the NED costs.

Given uncertainties surrounding the precise number of acres that would be impacted by dam breaching, and the potential variability of land values, a sensitivity analysis was included. This sensitivity analysis provides a range of effects, assuming acreage and farmland values both higher and lower than those presented in the water supply analysis.

The economic effects to M&I pump users, as well as private well users, were measured by quantifying capital costs required to modify the pumps and wells so that they remain functional under dam breach conditions. The Corps completed this analysis with input provided by the Water Supply Workgroup, a DREW subgroup led by the Corps of Engineers, Portland District. The Water Supply analysis is only one part of the overall Economic Appendix of the feasibility study. Other critical components of the economic analysis include power, transportation, tribal, regional, and social analysis.

The overall Economic Analysis will be presented in the *Lower Snake River Juvenile Salmon Migration Feasibility Report and Environmental Impact Statement*, scheduled for release in Fall 1999.

For additional information, contact the DREW chair, Dennis Wagner, at the Corps' Northwestern Division Office, at (503) 808-3854.

More information on the lower Snake River study is available on the Corps' Walla Walla District web site at *http://www.nww.usace.army.mil*.

Summary of Economic Effects to Water Users

The following table summarizes the results of the analysis of effects to water users under dam breach conditions. The reported values are average annual dollars over the 100-year evaluation period, based on a 6-7/8 percent discount rate.

Water Supply Category	Average Annual (Millions of Dollars)
Loss of Irrigated Farmland Value	$9.2
Municipal and Industrial Pump Stations	$0.8 to $3.8
Privately-Owned Wells	$3.9
Total	**$13.9 to $16.9**